Veolia Water Technologies has applied proven process designs based on HPD® Industrial Crystallization Technology and successfully utilized in the salt, fertilizer, and chemical industries to develop a simple and robust process to separate the wastewater from coal-fired power plants into clean water and a stable, non-hazardous solid for disposal and/or re-use.

The CoLD® Process is a simple and economical approach to ZLD. It requires no chemical treatment of the wastewater and generates no additional sludge for disposal. The CoLD® Process is an ideal solution to address stricter water reuse standards, mandated ZLD, and increasing regulation of discharge limits of total dissolved solids (TDS) facing the power industry.
Benefits of The CoLD® Process

- Achieves Zero Liquid Discharge (ZLD) on difficult coal-fired wastewaters
- Lowest CAPEX and OPEX
- No chemical pre-treatment or sludge production
- Produces clean water for reuse and stable solids for disposal
- Simple, robust process with high reliability and availability
- Operating experience in other industries

Conventional thermal processes for FGD and IGCC waste streams require clarification and extensive pre-treatment of the wastewater with lime, soda ash, caustic, and other chemicals to replace the calcium, magnesium, and ammonium ions in the wastewater with sodium ions in order to produce a crystalline solid to achieve ZLD.

In some cases, a final drying step is necessary to produce a stable solid suitable for disposal. Pre-treatment equipment includes chemical feed/storage facilities, solids settling or filtration equipment, and sludge dewatering equipment.

These additional facilities increase the footprint of the ZLD system as well as the capital costs and overall maintenance. The logistics of unloading, storing, and preparing chemicals and dewatering and transporting sludge for disposal substantially increase the OPEX.

The CoLD® Process, however, is operated at low temperature. The chemistries of FGD and IGCC wastewaters favor the formation of many hydrates and double salts which precipitate at low concentrations as the temperature of the solution is lowered. When concentrating the waste stream at low temperature, dissolved solids will crystallize at relatively low concentration, without the need for chemical pretreatment and resulting sludge production.